

U.S. Serial No. 10/009,415

"High-Pass Branch of a Frequency Separating Filter for ADSL Systems"

Filed: 10 December 2001

PRELIMINARY AMENDMENT

components with magnetic cores, wherein the high-pass branch comprises at least one component with a magnetic core made of an amorphous or nanocrystalline alloy.

2. (Amended) The frequency separating filter according to claim 1, wherein the alloy has the composition $\text{Co}_a(\text{Fe}_{1-c}\text{Mn}_c)_b\text{Ni}_d\text{M}_e\text{Si}_x\text{B}_y\text{C}_z$, with M indicating one or more elements from the group Nb, Mo, Ta, Cr, W, Ge, and P and $a+b+d+e+x+y+z = 100$, with

Co: $a = 40 - 82$ at%,

Fe+Mn: $b = 3 - 10$ at%,

Mn/Fe: $c = 0 - 1$,

Ni: $d = 0 - 30$ at%,

M: $e = 0 - 5$ at%,

Si: $x = 0 - 17$ at%,

B: $y = 8 - 26$ at%,

C: $z = 0 - 3$ at%,

$15 < e+x+y+z < 30$.

3. (Amended) The frequency separating filter according to claim 2, wherein the following relationships apply:

Co: $a = 50 - 82$ at%,

Fe+Mn: $b = 3 - 10$ at%,

Mn/Fe: $c = 0 - 0.5$,

Ni: $d = 0 - 20$ at%,

M: $e = 0 - 3$ at%,

Si: $x = 1 - 17$ at%,

B: $y = 8 - 20$ at%,

C: $z = 0 - 3$ at%,

with $18 < e+x+y+z < 25$.

U.S. Serial No. 10/009,415

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4. (Amended) The frequency separating filter according to claim 1, wherein the alloy has the composition $Fe_aCu_cM_fSi_dB_e$, with M indicating an element from the group Nb, W, Ta, Zr, Hf, Ti, Mo, or a combination of these and $a + c + f + d + e = 100\%$, with

Fe: $a = 100\% - c - f - d - e$,

Cu: $c = 0.5 - 2 \text{ at\%}$,

M: $f = 1 - 5 \text{ at\%}$,

Si: $d = 6.5 - 18 \text{ at\%}$,

B: $e = 5 - 14 \text{ at\%}$,

with $d + e > 18 \text{ at\%}$.

5. (Amended) The frequency separating filter according to claim 4, wherein the following relationships apply:

Cu: $c = 0.8 - 1.2 \text{ at\%}$,

M: $f = 2 - 3 \text{ at\%}$,

Si: $d = 14 - 17 \text{ at\%}$,

B: $e = 5 - 14 \text{ at\%}$,

with $d + e = 22 - 24 \text{ at\%}$.

6. (Amended) The frequency separating filter according to claim 1, wherein the alloy has the composition $Fe_xZr_yNb_zB_vCu_w$, with $x + y + z + v + w = 100 \text{ at\%}$, with

Fe: $x = 100 \text{ at\%} - y - z - v - w$,

Zr: $y = 2 - 5 \text{ at\%}$,

Nb: $z = 2 - 5 \text{ at\%}$,

B: $v = 5 - 9 \text{ at\%}$,

Cu: $w = 0.5 - 1.5 \text{ at\%}$,

with $y + z > 5 \text{ at\%}$ and $y + z + v > 11 \text{ at\%}$.

U.S. Serial No. 10/009,415

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7. (Amended) The frequency separating filter according to claim 6, wherein the following relationships apply:

Fe: $x = 83 - 86$ at%,

Zr: $y = 3 - 4$ at%,

Nb: $z = 3 - 4$ at%,

B: $v = 5 - 9$ at%,

Cu: $w = 1$ at%,

with $y + z = 6 - 7$ at%,

and $y + z + v > 12 - 16$ at%.

8. (Amended) The frequency separating filter according to claim 1, wherein the alloy has the composition $Fe_xM_yB_zCu_w$, with M indicating an element from the group Zr, Hf, Nb and $x + y + z + w = 100$ at%, with

Fe: $x = 100$ at% - $y - z - w$,

M: $y = 6 - 8$ at%,

B: $z = 3 - 9$ at%,

Cu: $w = 0 - 1.5$ at%.

9. (Amended) The frequency separating filter according to claim 8, wherein the following relationships apply:

Fe: $x = 83 - 91$ at%,

M: $y = 7$ at%,

B: $z = 3 - 9$ at%,

Cu: $w = 0 - 1.5$ at%.

10. (Amended) The frequency separating filter according to claim 1, wherein the alloy has the composition $(Fe_{0.98}Co_{0.02})_{90-x}Zr_7B_{2+x}Cu_1$, with $x = 0 - 3$, with the residual alloy component Co able to be replaced by Ni with appropriate equalization.

U.S. Serial No. 10/009,415

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11. (Amended) The frequency separating filter according to claim 10, wherein $x = 0$.

12. (Amended) The frequency separating filter according to claim 4, wherein the alloy also has an element which is Co or Ni.

13. (Amended) The frequency separating filter according to claim 12, wherein the alloy also has Co_b with

Co: $b = 0 - 15$ at%.

14. (Amended) The frequency separating filter according to claim 5, wherein the alloy also has Co_b with

Co: $b = 0 - 0.5$ at%.

Respectfully submitted



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